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TITLE : PREPARATION OF HIGH-MODULUS YARN

ABSTRACT : PURPOSE: To obtain the titled yarn efficiently without causing thermal deterioration, by subjecting optically anisotropic dope prepared by dissolving poly(p- phenylene terephthalamide) (PPTA for short) in conc. sulfuric acid to wet spinning, applying tension to the yarn under specific conditions, drying the yarn.

CONSTITUTION: PPTA is dissolved in 95~101wt% conc. sulfuric acid in such a way that the polymer concentration is $\geq 17\text{wt}\%$, and the dope is adjusted to a proper temperature to show optical anisotropy. Firstly, the dope is extruded into a gas, and then into a coagulating solution. The coagulated yarn is drawn out, washed with water, 1~10g/d tension (with the proviso that denier is based on yarn after drying) is applied to the yarn in $\geq 50\text{wt}\%$ water content state, the length of the yarn is made not to change $\geq 0.5\%$ during the application of tension, and the yarn is dried at room temperature $\sim 200^\circ\text{C}$, to give the desired yarn.

EFFECT: Having a few fluff and small unevenness of sectional area of fiber.

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